

What is claimed is:

1. A method of driving an active matrix display device wherein one frame comprises a plurality of sub-frames each comprising a write time and a hold time and a gray scale display is brought about by the cumulative
5 effect of the hold times, the method comprising the steps of:

simultaneously with outputting a signal having a value of a signal level via each of signal lines, the value of the signal level being selected from values of a plurality of signal levels in accordance with digital image data and the number of the plurality of signal levels being fewer than the number of display gray scales,

randomly scanning scan lines other than one predetermined scan line in a predetermined sequence in the hold time of each of the sub-frames corresponding to the one predetermined scan line so that any one sub-frame is not written to any one scan line more
10 than once;

wherein one frame period is such that in each respective scan line, the writing of each of the plurality of sub-frames is substantially brought about and the hold time of each of the sub-frames is ensured to bring about gray scale display driving.

2. A method of driving an active matrix display device wherein one frame comprises a plurality of sub-frames SF1, SF2, ..., SFn, where n is a natural number, each comprising a write time and a hold time and a gray scale display is brought about by the cumulative effect of the hold times, the
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method comprising the steps of:

simultaneously with outputting a signal having a value of a signal level via each of signal lines, the value of the signal level being selected from values of a plurality of signal levels in accordance with digital image data and the number of the plurality of signal levels being fewer than the number of display gray scales, selecting scan lines so that a selection sequence of the periods of the sub-frames is repeated cyclically as in $SF1 \rightarrow SF2 \rightarrow \dots \rightarrow SFn \rightarrow SF1 \rightarrow SF2 \rightarrow \dots \rightarrow SFn$.

3. A method of driving an active matrix display device wherein one frame comprises a plurality of sub-frames $SF1, SF2, \dots, SFn$, where n is a natural number, each comprising a write time and a hold time and a gray scale display is brought about by the cumulative effect of the hold times, the method comprising the steps of:

simultaneously with outputting a signal having a value of a signal level via each of signal lines, the value of the signal level being selected from values of a plurality of signal levels in accordance with digital image data and the number of the plurality of signal levels being fewer than the number of display gray scales, selecting scan lines so that a selection sequence of the periods of the sub-frames is repeated cyclically as in $SF1 \rightarrow SF2 \rightarrow \dots \rightarrow SFn \rightarrow SF1 \rightarrow SF2 \rightarrow \dots \rightarrow SFn$ and sequential scanning is brought about with respect to each of the sub-frame periods.

4. A method of driving an active matrix display device wherein one frame comprises a plurality of sub-frames each comprising a write time and a hold time and a gray scale display is brought about by the cumulative effect of the hold times, the method comprising the steps of:

5 simultaneously with outputting a signal having a value of a signal level via each of signal lines, the value of the signal level being selected from values of a plurality of signal levels in accordance with digital image data and the number of the plurality of signal levels being fewer than the number of display gray scales,

10 driving the display device such that the period of the frame is set to

$$NH[1+K(2^N-1)]=NHL$$

where N is the number of sub-frames, H is a horizontal scanning period, $1:2:4:\dots:2^{N-1}$ is the weightings of the hold times, L is the number of scan lines, and K is a positive integer.

15 5. A method of driving an active matrix display device wherein one frame comprises a plurality of sub-frames each comprising a write time and a hold time and a gray scale display is brought about by the cumulative effect of the hold times, the method comprising the steps of:

20 simultaneously with outputting a signal having a value of a signal level via each of signal lines, the value of the signal level being selected from values of a plurality of signal levels in accordance with digital image data and the number of the plurality of signal levels being fewer than the number of display gray scales,

driving the display device such that the period of the frame is set to

$$NH[1 - \sum K(i)] = NHL$$

where N is the number of sub-frames, H is a horizontal scanning period, $K(i)$ is the weighting of the hold time of the period of an i th sub-frame where $i=1,2,\dots,N$, and L is the number of scan lines.

6. A method of driving an active matrix display device wherein one frame comprises a plurality of sub-frames each comprising a write time and a hold time and a gray scale display is brought about by the cumulative effect of the hold times, the method comprising the steps of:

simultaneously with outputting a signal having a value of a signal level via each of signal lines, the value of the signal level being selected from values of a plurality of signal levels in accordance with digital image data and the number of the plurality of signal levels being at least three and fewer than the number of display gray scales, making two the degree of freedom of the signal levels usable for one gray scale within the period of the one frame.

7. A method of driving an active matrix display device according to claim 1, wherein the number of the values of the plurality of signal levels is two.

8. A method of driving an active matrix display device according to claim 2, wherein the number of the values of the plurality of signal levels is two.

9. A method of driving an active matrix display device according to

claim 3, wherein the number of the values of the plurality of signal levels is two.

10. A method of driving an active matrix display device according to claim 4, wherein the number of the values of the plurality of signal levels is two.

11. A method of driving an active matrix display device according to claim 5, wherein the number of the values of the plurality of signal levels is two.

12. A method of driving an active matrix display device according to claim 1, wherein the number of the values of the plurality of signal levels is a plurality of three or more.

13. A method of driving an active matrix display device according to claim 2, wherein the number of the values of the plurality of signal levels is a plurality of three or more.

14. A method of driving an active matrix display device according to claim 3, wherein the number of the values of the plurality of signal levels is a plurality of three or more.

15. A method of driving an active matrix display device according to claim 4, wherein the number of the values of the plurality of signal levels is a plurality of three or more.

16. A method of driving an active matrix display device according to claim 5, wherein the number of the values of the plurality of signal levels is a plurality of three or more.

17. An active matrix display device including a first substrate and a second substrate confronting the first substrate with a liquid crystal layer therebetween, the first substrate having formed thereon switching elements corresponding to the intersection points of a plurality of signal lines and a plurality of scan lines arranged in a matrix, pixel electrodes connected to the switching elements, and storage capacitors connected to the pixel electrodes and the second substrate having formed thereon a counter electrode, wherein one frame comprises a plurality of sub-frames each comprising a write time and a hold time and a gray scale display is brought about by the cumulative effect of the hold times, the display device comprising:

15 a signal line driver circuit for selecting a value of a voltage level from values of a plurality of voltage levels in accordance with digital image data and outputting a voltage having the selected value via each of the signal lines, the number of the plurality of voltage levels being fewer than the number of display gray scales; and

20 a scan line driver circuit for randomly scanning the plurality of scan lines by scanning scan lines other than one predetermined scan line in a predetermined sequence in the hold time of each of the sub-frames corresponding to the one predetermined scan so that any one sub-frame is not written to any one scan line more than

once;

wherein one frame period is such that in each respective scan line, the writing of each of the plurality of sub-frames is substantially brought about and the hold time of each of the sub-frames is ensured to bring about gray scale display driving.

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18. An active matrix display device including a first substrate and a second substrate confronting the first substrate with a liquid crystal layer therebetween, the first substrate having formed thereon switching elements corresponding to the intersection points of a plurality of signal lines and a plurality of scan lines arranged in a matrix, pixel electrodes connected to the switching elements, and storage capacitors connected to the pixel electrodes and the second substrate having formed thereon a counter electrode, wherein one frame comprises a plurality of sub-frames SF1, SF2, ..., SFn, where n is a natural number, each comprising a write time and a hold time and a gray scale display is brought about by the cumulative effect of the hold times, the display device comprising:

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a signal line driver circuit for selecting a value of a voltage level from values of a plurality of voltage levels in accordance with digital image data and outputting a voltage having the selected value via each of the signal lines, the number of the plurality of voltage levels being fewer than the number of display gray scales; and
a scan line driver circuit for selecting the scan lines so that a selection sequence of the periods of the sub-frames is repeated cyclically as in SF1→SF2→...→SFn→SF1→SF2→...→SFn.

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19. An active matrix display device including a first substrate and a second substrate confronting the first substrate with a liquid crystal layer therebetween, the first substrate having formed thereon switching elements corresponding to the intersection points of a plurality of signal lines and a plurality of scan lines arranged in a matrix, pixel electrodes connected to the switching elements, and storage capacitors connected to the pixel electrodes and the second substrate having formed thereon a counter electrode, wherein one frame comprises a plurality of sub-frames SF1, SF2, ..., SFn, where n is a natural number, each comprising a write time and a hold time and a gray scale display is brought about by the cumulative effect of the hold times, the display device comprising:

a signal line driver circuit for selecting a value of a voltage level from values of a plurality of voltage levels in accordance with digital image data and outputting a voltage having the selected value via each of the signal lines, the number of the plurality of voltage levels being fewer than the number of display gray scales; and

a scan line driver circuit for selecting the scan lines so that a selection sequence of the periods of the sub-frames is repeated cyclically as in SF1→SF2→...→SFn→SF1→SF2→...→SFn and sequential scanning is brought about with respect to each of the sub-frame periods.

20. An active matrix display device including a first substrate and a second substrate confronting the first substrate with a liquid crystal layer therebetween, the first substrate having formed thereon switching elements

corresponding to the intersection points of a plurality of signal lines and a plurality of scan lines arranged in a matrix, pixel electrodes connected to the switching elements, and storage capacitors connected to the pixel electrodes and the second substrate having formed thereon a counter electrode, wherein one frame comprises a plurality of sub-frames each comprising a write time and a hold time and a gray scale display is brought about by the cumulative effect of the hold times, the display device comprising:

- a signal line driver circuit for selecting a value of a voltage level from values of a plurality of voltage levels in accordance with digital image data and outputting a voltage having the selected value via each of the signal lines, the number of the plurality of voltage levels being fewer than the number of display gray scales; and
- a scan line driver circuit for selecting the scan lines so that the period of the frame is

$$NH[1+K(2^N-1)]=NHL$$

where N is the number of sub-frames, H is a horizontal scanning period, $1:2:4:\dots:2^{N-1}$ is the weightings of the hold times, L is the number of scan lines, and K is a positive integer.

21. An active matrix display device including a first substrate and a second substrate confronting the first substrate with a liquid crystal layer therebetween, the first substrate having formed thereon switching elements corresponding to the intersection points of a plurality of signal lines and a plurality of scan lines arranged in a matrix, pixel electrodes connected to

the switching elements, and storage capacitors connected to the pixel electrodes and the second substrate having formed thereon a counter electrode, wherein one frame comprises a plurality of sub-frames each comprising a write time and a hold time and a gray scale display is brought about by the cumulative effect of the hold times, the display device comprising:

- a signal line driver circuit for selecting a value of a voltage level from values of a plurality of voltage levels in accordance with digital image data and outputting a voltage having the selected value via each of the signal lines, the number of the plurality of voltage levels being fewer than the number of display gray scales; and
- a scan line driver circuit for selecting the scan lines so that the period of the frame is

$$NH[1 - \sum K(i)] = NHL$$

where N is the number of sub-frames, H is a horizontal scanning period, $K(i)$ is the weighting of the hold time of the period of an i th sub-frame where $i=1,2,\dots, N$, and L is the number of scan lines.

22. An active matrix display device including a first substrate and a second substrate confronting the first substrate with a liquid crystal layer therebetween, the first substrate having formed thereon switching elements corresponding to the intersection points of a plurality of signal lines and a plurality of scan lines arranged in a matrix, pixel electrodes connected to the switching elements, and storage capacitors connected to the pixel electrodes and the second substrate having formed thereon a counter

electrode, wherein one frame comprises a plurality of sub-frames each comprising a write time and a hold time and a gray scale display is brought about by the cumulative effect of the hold times, the display device comprising:

- 5 a signal line driver circuit for selecting a value of a voltage level from values of a plurality of voltage levels in accordance with digital image data and outputting a voltage having the selected value via each of the signal lines, the number of the plurality of voltage levels being at least three and fewer than the number of display gray scales and the selection being carried out so that the degree of freedom of the voltage levels usable for one gray scale within
- 10 the period of the one frame is two; and
- a scan line driver circuit for sequentially scanning or randomly scanning the scan lines.

15 23. An active matrix display device according to claim 17, wherein the number of the values of the plurality of voltage levels is two.

24. An active matrix display device according to claim 18, wherein the number of the values of the plurality of voltage levels is two.

20 25. An active matrix display device according to claim 19, wherein the number of the values of the plurality of voltage levels is two.

26. An active matrix display device according to claim 20, wherein the number of the values of the plurality of voltage levels is two.

27. An active matrix display device according to claim 21, wherein the number of the values of the plurality of voltage levels is two.

28. An active matrix display device according to claim 17, wherein the number of the values of the plurality of voltage levels is a plurality of three or more.

29. An active matrix display device according to claim 18, wherein the number of the values of the plurality of voltage levels is a plurality of three or more.

30. An active matrix display device according to claim 19, wherein the number of the values of the plurality of voltage levels is a plurality of three or more.

31. An active matrix display device according to claim 20, wherein the number of the values of the plurality of voltage levels is a plurality of three or more.

32. An active matrix display device according to claim 21, wherein the number of the values of the plurality of voltage levels is a plurality of three or more.

33. An active matrix display device according to claim 17, wherein the signal line driver circuit comprises an analog multiplexer for selecting one value of a voltage level selected from the plurality of voltage levels and outputting a voltage having the selected one value.

34. An active matrix display device according to claim 18, wherein the signal line driver circuit comprises an analog multiplexer for selecting one value of a voltage level selected from the plurality of voltage levels and outputting a voltage having the selected one value.

5 35. An active matrix display device according to claim 19, wherein the signal line driver circuit comprises an analog multiplexer for selecting one value of a voltage level selected from the plurality of voltage levels and outputting a voltage having the selected one value.

10 36. An active matrix display device according to claim 20, wherein the signal line driver circuit comprises an analog multiplexer for selecting one value of a voltage level selected from the plurality of voltage levels and outputting a voltage having the selected one value.

15 37. An active matrix display device according to claim 21, wherein the signal line driver circuit comprises an analog multiplexer for selecting one value of a voltage level selected from the plurality of voltage levels and outputting a voltage having the selected one value.

20 38. An active matrix display device according to claim 22, wherein the signal line driver circuit comprises an analog multiplexer for selecting one value of a voltage level selected from the plurality of voltage levels and outputting a voltage having the selected one value.

39. An active matrix display device according to claim 17, wherein the

scan line driver circuit comprises a decoder for selecting the scan lines in accordance with inputted address signals.

40. An active matrix display device according to claim 18, wherein the scan line driver circuit comprises a decoder for selecting the scan lines in accordance with inputted address signals.

41. An active matrix display device according to claim 19, wherein the scan line driver circuit comprises a decoder for selecting the scan lines in accordance with inputted address signals.

42. An active matrix display device according to claim 20, wherein the scan line driver circuit comprises a decoder for selecting the scan lines in accordance with inputted address signals.

43. An active matrix display device according to claim 21, wherein the scan line driver circuit comprises a decoder for selecting the scan lines in accordance with inputted address signals.

44. An active matrix display device according to claim 22, wherein the scan line driver circuit comprises a decoder for selecting the scan lines in accordance with inputted address signals.

45. An active matrix display device according to claim 17, wherein each of the switching elements comprises a three-terminal thin film transistor.

46. An active matrix display device according to claim 18, wherein each

of the switching elements comprises a three-terminal thin film transistor.

47. An active matrix display device according to claim 19, wherein each of the switching elements comprises a three-terminal thin film transistor.

48. An active matrix display device according to claim 20, wherein each of the switching elements comprises a three-terminal thin film transistor.

49. An active matrix display device according to claim 21, wherein each of the switching elements comprises a three-terminal thin film transistor.

50. An active matrix display device according to claim 22, wherein each of the switching elements comprises a three-terminal thin film transistor.

51. An active matrix display device according to claim 17, wherein the counter electrode is driven by inversion driving according to a cycle of an integral multiple of a horizontal scanning period, the driving being synchronized with output signals from the signal line driver circuit.

52. An active matrix display device according to claim 18, wherein the counter electrode is driven by inversion driving according to a cycle of an integral multiple of a horizontal scanning period, the driving being synchronized with output signals from the signal line driver circuit.

53. An active matrix display device according to claim 19, wherein the counter electrode is driven by inversion driving according to a cycle of an integral multiple of a horizontal scanning period, the driving being

synchronized with output signals from the signal line driver circuit.

54. An active matrix display device according to claim 20, wherein the counter electrode is driven by inversion driving according to a cycle of an integral multiple of a horizontal scanning period, the driving being
5 synchronized with output signals from the signal line driver circuit.

55. An active matrix display device according to claim 21, wherein the counter electrode is driven by inversion driving according to a cycle of an integral multiple of a horizontal scanning period, the driving being
synchronized with output signals from the signal line driver circuit.

10 56. An active matrix display device according to claim 22, wherein the counter electrode is driven by inversion driving according to a cycle of an integral multiple of a horizontal scanning period, the driving being
synchronized with output signals from the signal line driver circuit.

57. An active matrix display device according to claim 17, wherein
15 outputs supplied from the scan line driver circuit are selected from four values to carry out capacitively coupled driving.

58. An active matrix display device according to claim 18, wherein outputs supplied from the scan line driver circuit are selected from four values to carry out capacitively coupled driving.

20 59. An active matrix display device according to claim 19, wherein outputs supplied from the scan line driver circuit are selected from four

values to carry out capacitively coupled driving.

60. An active matrix display device according to claim 20, wherein outputs supplied from the scan line driver circuit are selected from four values to carry out capacitively coupled driving.

5 61. An active matrix display device according to claim 21, wherein outputs supplied from the scan line driver circuit are selected from four values to carry out capacitively coupled driving.

62. An active matrix display device according to claim 22, wherein outputs supplied from the scan line driver circuit are selected from four
10 values to carry out capacitively coupled driving.

63. An active matrix display device according to claim 17, wherein outputs supplied from the scan line driver circuit are selected from two values and the storage capacitors are independently driven with two values to carry out capacitively coupled driving.

15 64. An active matrix display device according to claim 18, wherein outputs supplied from the scan line driver circuit are selected from two values and the storage capacitors are independently driven with two values to carry out capacitively coupled driving.

20 65. An active matrix display device according to claim 19, wherein outputs supplied from the scan line driver circuit are selected from two values and the storage capacitors are independently driven with two values

to carry out capacitively coupled driving.

66. An active matrix display device according to claim 20, wherein outputs supplied from the scan line driver circuit are selected from two values and the storage capacitors are independently driven with two values
5 to carry out capacitively coupled driving.

67. An active matrix display device according to claim 21, wherein outputs supplied from the scan line driver circuit are selected from two values and the storage capacitors are independently driven with two values
to carry out capacitively coupled driving.

68. An active matrix display device according to claim 22, wherein outputs supplied from the scan line driver circuit are selected from two values and the storage capacitors are independently driven with two values
10 to carry out capacitively coupled driving.

69. An active matrix display device including a first substrate and a
15 second substrate confronting the first substrate with a luminescent layer therebetween, the first substrate having formed thereon first switching elements corresponding to the intersection points of a plurality of signal lines and a plurality of scan lines arranged in a matrix, second switching elements connected to the first switching elements, pixel electrodes
20 connected to the second switching elements, and power supply lines connected to a side of the second switching elements differing from that to which the pixel electrodes are connected and the second substrate having

formed thereon a counter electrode, wherein one frame comprises a plurality of sub-frames each comprising a write time and a hold time and a gray scale display is brought about by the cumulative effect of the hold times, the display device comprising:

5 a signal line driver circuit for selecting a value of a voltage level from values of a plurality of voltage levels in accordance with digital image data and outputting a voltage having the selected value via each of the signal lines, the number of the plurality of voltage levels being fewer than the number of display gray scales; and

10 a scan line driver circuit for randomly scanning the plurality of scan lines by scanning scan lines other than one predetermined scan line in a predetermined sequence in the hold time of each of the sub-frames corresponding to the one predetermined scan so that any one sub-frame is not written to any one scan line more than
15 once;

wherein one frame period is such that in each respective scan line, the writing of each of the plurality of sub-frames is substantially brought about and the hold time of each of the sub-frames is ensured to bring about gray scale display driving.

20 70. An active matrix display device including a first substrate and a second substrate confronting the first substrate with a luminescent layer therebetween, the first substrate having formed thereon first switching elements corresponding to the intersection points of a plurality of signal lines and a plurality of scan lines arranged in a matrix, second switching

elements connected to the first switching elements, pixel electrodes connected to the second switching elements, and power supply lines connected to a side of the second switching elements differing from that to which the pixel electrodes are connected and the second substrate having formed thereon a counter electrode, wherein one frame comprises a plurality of sub-frames SF1, SF2, ..., SFn, where n is a natural number, each comprising a write time and a hold time and a gray scale display is brought about by the cumulative effect of the hold times, the display device comprising:

a signal line driver circuit for selecting a value of a voltage level from values of a plurality of voltage levels in accordance with digital image data and outputting a voltage having the selected value via each of the signal lines, the number of the plurality of voltage levels being fewer than the number of display gray scales; and

a scan line driver circuit for selecting the scan lines so that a selection sequence of the periods of the sub-frames is repeated cyclically as in SF1→SF2→...→SFn→SF1→SF2→...→SFn.

71. An active matrix display device including a first substrate and a second substrate confronting the first substrate with a luminescent layer therebetween, the first substrate having formed thereon first switching elements corresponding to the intersection points of a plurality of signal lines and a plurality of scan lines arranged in a matrix, second switching elements connected to the first switching elements, pixel electrodes connected to the second switching elements, and power supply lines

connected to a side of the second switching elements differing from that to which the pixel electrodes are connected and the second substrate having formed thereon a counter electrode, wherein one frame comprises a plurality of sub-frames SF1, SF2, ..., SFn, where n is a natural number, each comprising a write time and a hold time and a gray scale display is brought about by the cumulative effect of the hold times, the display device comprising:

a signal line driver circuit for selecting a value of a voltage level from values of a plurality of voltage levels in accordance with digital image data and outputting a voltage having the selected value via each of the signal lines, the number of the plurality of voltage levels being fewer than the number of display gray scales; and

a scan line driver circuit for selecting the scan lines so that a selection sequence of the periods of the sub-frames is repeated cyclically as in SF1→SF2→...→SFn→SF1→SF2→...→SFn and sequential scanning is brought about with respect to each of the sub-frame periods.

72. An active matrix display device including a first substrate and a second substrate confronting the first substrate with a luminescent layer therebetween, the first substrate having formed thereon first switching elements corresponding to the intersection points of a plurality of signal lines and a plurality of scan lines arranged in a matrix, second switching elements connected to the first switching elements, pixel electrodes connected to the second switching elements, and power supply lines

connected to a side of the second switching elements differing from that to which the pixel electrodes are connected and the second substrate having formed thereon a counter electrode, wherein one frame comprises a plurality of sub-frames each comprising a write time and a hold time and a gray scale display is brought about by the cumulative effect of the hold times, the display device comprising:

a signal line driver circuit for selecting a value of a voltage level from values of a plurality of voltage levels in accordance with digital image data and outputting a voltage having the selected value via each of the signal lines, the number of the plurality of voltage levels being fewer than the number of display gray scales; and a scan line driver circuit for selecting the scan lines so that the period of the frame is

$$NH[1 + K(2^N - 1)] = NHL$$

where N is the number of sub-frames, H is a horizontal scanning period, $1:2:4:\dots:2^{N-1}$ is the weightings of the hold times, L is the number of scan lines, and K is a positive integer.

73. An active matrix display device including a first substrate and a second substrate confronting the first substrate with a luminescent layer therebetween, the first substrate having formed thereon first switching elements corresponding to the intersection points of a plurality of signal lines and a plurality of scan lines arranged in a matrix, second switching elements connected to the first switching elements, pixel electrodes connected to the second switching elements, and power supply lines

connected to a side of the second switching elements differing from that to which the pixel electrodes are connected and the second substrate having formed thereon a counter electrode, wherein one frame comprises a plurality of sub-frames each comprising a write time and a hold time and a gray scale display is brought about by the cumulative effect of the hold times, the display device comprising:

- a signal line driver circuit for selecting a value of a voltage level from values of a plurality of voltage levels in accordance with digital image data and outputting a voltage having the selected value via each of the signal lines, the number of the plurality of voltage levels being fewer than the number of display gray scales; and
- a scan line driver circuit for selecting the scan lines so that the period of the frame is

$$NH[1 - \sum K(i)] = NHL$$

- where N is the number of sub-frames, H is a horizontal scanning period, $K(i)$ is the weighting of the hold time of the period of an i th sub-frame where $i=1,2,\dots, N$, and L is the number of scan lines.

74. An active matrix display device including a first substrate and a second substrate confronting the first substrate with a luminescent layer therebetween, the first substrate having formed thereon first switching elements corresponding to the intersection points of a plurality of signal lines and a plurality of scan lines arranged in a matrix, second switching elements connected to the first switching elements, pixel electrodes connected to the second switching elements, and power supply lines

connected to a side of the second switching elements differing from that to which the pixel electrodes are connected and the second substrate having formed thereon a counter electrode, wherein one frame comprises a plurality of sub-frames each comprising a write time and a hold time and a gray scale display is brought about by the cumulative effect of the hold times, the

5 display device comprising:

a signal line driver circuit for selecting a value of a voltage level from values of a plurality of voltage levels in accordance with digital image data and outputting a voltage having the selected value via each of the signal lines, the number of the plurality of voltage levels being at least three and fewer than the number of display gray scales and the selection being carried out so that the degree of freedom of the voltage levels usable for one gray scale within the period of the one frame is two; and

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a scan line driver circuit for sequentially scanning or randomly scanning the scan lines.

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75. An active matrix display device according to claim 69, wherein the number of the values of the plurality of voltage levels is two.

76. An active matrix display device according to claim 70, wherein the number of the values of the plurality of voltage levels is two.

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77. An active matrix display device according to claim 71, wherein the number of the values of the plurality of voltage levels is two.

78. An active matrix display device according to claim 72, wherein the number of the values of the plurality of voltage levels is two.

79. An active matrix display device according to claim 73, wherein the number of the values of the plurality of voltage levels is two.

5 80. An active matrix display device according to claim 69, wherein the number of the values of the plurality of voltage levels is a plurality of three or more.

81. An active matrix display device according to claim 70, wherein the number of the values of the plurality of voltage levels is a plurality of three or more.

10 82. An active matrix display device according to claim 71, wherein the number of the values of the plurality of voltage levels is a plurality of three or more.

15 83. An active matrix display device according to claim 72, wherein the number of the values of the plurality of voltage levels is a plurality of three or more.

84. An active matrix display device according to claim 73, wherein the number of the values of the plurality of voltage levels is a plurality of three or more.

20 85. An active matrix display device according to claim 69, wherein the

signal line driver circuit comprises an analog multiplexer for selecting one value of a voltage level selected from the plurality of voltage levels and outputting a voltage having the selected one value.

86. An active matrix display device according to claim 70, wherein the
5 signal line driver circuit comprises an analog multiplexer for selecting one value of a voltage level selected from the plurality of voltage levels and outputting a voltage having the selected one value.

87. An active matrix display device according to claim 71, wherein the
10 signal line driver circuit comprises an analog multiplexer for selecting one value of a voltage level selected from the plurality of voltage levels and outputting a voltage having the selected one value.

88. An active matrix display device according to claim 72, wherein the
15 signal line driver circuit comprises an analog multiplexer for selecting one value of a voltage level selected from the plurality of voltage levels and outputting a voltage having the selected one value.

89. An active matrix display device according to claim 73, wherein the signal line driver circuit comprises an analog multiplexer for selecting one value of a voltage level selected from the plurality of voltage levels and outputting a voltage having the selected one value.

20 90. An active matrix display device according to claim 74, wherein the signal line driver circuit comprises an analog multiplexer for selecting one

value of a voltage level selected from the plurality of voltage levels and outputting a voltage having the selected one value.

91. An active matrix display device according to claim 69, wherein the scan line driver circuit comprises a decoder for selecting the scan lines in
5 accordance with inputted address signals.

92. An active matrix display device according to claim 70, wherein the scan line driver circuit comprises a decoder for selecting the scan lines in accordance with inputted address signals.

93. An active matrix display device according to claim 71, wherein the scan line driver circuit comprises a decoder for selecting the scan lines in
10 accordance with inputted address signals.

94. An active matrix display device according to claim 72, wherein the scan line driver circuit comprises a decoder for selecting the scan lines in accordance with inputted address signals.

15 95. An active matrix display device according to claim 73, wherein the scan line driver circuit comprises a decoder for selecting the scan lines in accordance with inputted address signals.

96. An active matrix display device according to claim 74, wherein the scan line driver circuit comprises a decoder for selecting the scan lines in
20 accordance with inputted address signals.

97. An active matrix display device according to claim 69, wherein each of the first switching elements and the second switching elements comprises a three-terminal thin film transistor.

5 98. An active matrix display device according to claim 70, wherein each of the first switching elements and the second switching elements comprises a three-terminal thin film transistor.

99. An active matrix display device according to claim 71, wherein each of the first switching elements and the second switching elements comprises a three-terminal thin film transistor.

10 100. An active matrix display device according to claim 72, wherein each of the first switching elements and the second switching elements comprises a three-terminal thin film transistor.

101. An active matrix display device according to claim 73, wherein each of the first switching elements and the second switching elements comprises a three-terminal thin film transistor.

102. An active matrix display device according to claim 74, wherein each of the first switching elements and the second switching elements comprises a three-terminal thin film transistor.